

ID 9518

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4/1/2002

**POND 8S POST-CLOSURE  
Monitoring and Inspection Summary for 2001**

**FILE COPY**

**Astaris Idaho LLC  
EPA ID No. IDD 07092 9518**

April 2002

**POND 8S POST-CLOSURE**  
**Monitoring and Inspection Summary for 2001**  
**April 2, 2002**

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A summary of the post-closure monitoring and inspection activities performed at Pond 8S during the second year of post-closure monitoring (January 2001 through December 2001) is provided below. The summary is generally organized in the same order as on Table 10-1 Post-Closure Activity Checklist from the Pond 8S post-closure plan.

Attachment A is a copy of the Temperature and Pressure Monitoring Results, Quarterly Monitoring Equipment Inspection forms, and Quarterly Groundcover Inspection forms presented by quarter for 1<sup>st</sup> quarter 2001 through 4<sup>th</sup> quarter 2001. Attachment B is a summary of the quarterly Gas Monitoring Point (GMP) soil gas monitoring results for 1<sup>st</sup> quarter 2001 through 4<sup>th</sup> quarter 2001. These attachments are referenced under the relevant sections below.

Groundwater Monitoring

Groundwater monitoring was conducted quarterly per the Pond 8S post-closure plan and RCRA Interim Status Groundwater Monitoring Plan (August 1999) for the facility. The monitoring results are provided under separate cover in the "RCRA Interim Status 2001 Groundwater Monitoring Assessment," that was submitted to EPA on February 28, 2002. In summary, monitored constituent concentrations were at or below levels measured during the previous year (2000). As in prior monitoring events, elemental phosphorus was not detected in the Pond 8S groundwater wells 155, 156 and 157 (down-gradient wells) during the semi-annual monitoring events (May and November 2001).

Quarterly Inspections

Acceptable conditions were noted throughout the monitoring period. Items that required follow-up are summarized below. Copies of the Quarterly Monitoring Equipment and Groundcover Inspection forms are included in Attachment A.

- Cap and cover: Acceptable conditions were noted throughout the monitoring period. No evidence of rodent activity seen throughout the monitoring period.
- Settlement monuments: Acceptable conditions were noted throughout the monitoring period
- Drainage systems: Acceptable conditions were noted throughout the monitoring period.
- Security: Acceptable conditions were noted throughout the monitoring period.
- Temperature and pressure monitoring equipment (enclosures/hardware): Acceptable conditions were noted throughout the monitoring period. Difficulties encountered with power, programming and Data Recorder Modules (DRMs) are discussed below.
- Groundwater monitoring wells: Acceptable conditions were noted throughout the monitoring period.
- LCDRS: Pond 8S does not have a LCDRS so this item is not applicable.

### Storm Event Inspections

There were no 25-year, 24-hour storm events or other extraordinary natural events that triggered a storm event inspection during the reporting period.

### Temperature Monitoring

No temperature alarms were triggered at the Temperature Monitoring Points (TMPs). The temperature trigger of 22° C was not exceeded at any of the TMPs during the monitoring period. Therefore, no TMP monitoring for soil gas, notification or reporting was required during the monitoring period. Note that the temperature alarm system was designed/installed so that separate signal is sent to the alarm panel board. This system prevented the temperature alarm from being affected by the data logging difficulties described below.

Graphs of the TMP temperature data are presented for the 1<sup>st</sup> quarter 2001 through 4<sup>th</sup> quarter 2001 in Attachment A.

New Data Recorder Modules (DRMs) were installed for Temperature Probes T01 and T03 on 1/12/2001. These DRMs failed during the 4<sup>th</sup> quarter 2000. Temperature data was not logged from 1/1/01 to 1/12/01 due to the failure. Spare DRMs were purchased and stored on-site to avoid downtime from DRM failures in the future.

No problems or failures were encountered during the 2<sup>nd</sup> quarter 2001. Data was continuously logged for pressure probe P01 and temperature probes T01, T02, T03, and T04.

A lightning storm during the 3<sup>rd</sup> quarter 2001 caused data and programming loss on the pressure DRM and all temperature DRMs. Data loss was recorded for P01 from 8/23/01 to 9/23/01. Data loss was recorded for T01, T02, T03, and T04 from 8/23/01 to 9/20/01. Reprogramming of the DRMs was successful for P01, T02, and T03. The DRMs for T01 and T04 would not respond to any reprogramming and had to be replaced with two in stock. These DRMs were sent back to the factory for service.

All temperature probes and the pressure probe ran without failure during the 4<sup>th</sup> quarter 2001. Data was continuously recorded during this time period.

The temperature probes were recalibrated (annual recalibration) on 11/14/01.

### Pressure Monitoring

No pressure alarms were triggered by the pressure monitoring system. The pressure trigger of 27 inches Hg was not exceeded during the monitoring period. Therefore, no Gas Monitoring Point (GMP) monitoring for soil gas (other than regularly scheduled quarterly GMP monitoring), notification or reporting was required during the monitoring period. Note that the pressure alarm system was designed/installed so that a separate signal is sent to the alarm panel board. This system prevented the pressure alarm from being affected by the pressure data logging difficulties described above (i.e., lightning storm during the 3<sup>rd</sup> quarter 2001).



Graphs of the pressure data are presented for the 1<sup>st</sup> quarter 2001 through 4<sup>th</sup> quarter 2001 in Attachment A.

A new factory-calibrated pressure sensor was installed on 10/29/01 (annual recalibration) and the original sensor was sent to the manufacturer for factory calibration. The recalibrated sensor was returned and can be used as a calibrated spare.

#### Soil Gas Monitoring (GMPs)

Soil gas monitoring for hydrogen, phosphine, and hydrogen cyanide was conducted quarterly at the ten GMPs during 1<sup>st</sup> quarter 2001 through 4<sup>th</sup> quarter 2001. Overall, soil gases were not detected consistently at eight of the ten GMPs. Phosphine and hydrogen cyanide were detected at GMP 07 and GMP 09 during 1<sup>st</sup> through 4<sup>th</sup> quarter 2001. Phosphine and hydrogen cyanide were also reported to have been detected at GMP 03 and GMP 04 during 2<sup>nd</sup> quarter 2001, and GMPs 01, 03, 04, 06 and 10 during 3<sup>rd</sup> quarter 2001. The reported detections for these wells are suspected to be false positives due to the lack of detection previously (4<sup>th</sup> quarter 1999 through 1<sup>st</sup> quarter 2001) and inconsistent detection during 2001. The monitoring technicians are following the operating instructions properly and annual factory calibrations have been performed per the QAPP; however, there is continuing concern with potential interferences, bias and false positives with the ATI HCN and PH3 monitors. FMC management, A&E technicians, RJK Consulting and on-site laboratory personnel are implementing a plan to identify source(s) and magnitude of interferences/bias, potential methods to quantitate and correct for bias, and/or identify alternate procedures/equipment to eliminate interferences/bias.

No triggers or actions are prescribed for detection of gases in the GMPs. As discussed above, there were no pressure or temperature alarms triggered during the monitoring period that would indicate problems within the Pond 8S Limit of Final Cover (LFC). FMC will continue to evaluate future soil gas monitoring results for trends that may explain the occurrence and implications, if any, of soil gases at GMPs 07 and 09. A summary of the GMP monitoring results by quarter is provided as Attachment B.

#### Cap Drainage Monitoring

No water was pumped from the cap drainage sub drain outlets #1 or #2 during the monitoring period (readings on the totalizing meters were both zero on 11/14/01). Therefore, the total cap drainage infiltration rate was zero for the monitoring period and required no further evaluation or action. Cap drainage monitoring (reading the totalizing meters) will continue to be conducted during the 4<sup>th</sup> quarter.

#### Topsoil Monitoring

Topsoil thickness as measured at the topsoil markers was acceptable and no action was required throughout the monitoring period.

#### Settlement Monitoring

Annual settlement monitoring (survey of permanent settlement monuments) indicated that settlement rates are acceptable at all five monuments. No visual subsidence or seismic events occurred that

would have triggered additional settlement monitoring, engineering evaluation or repair during the monitoring period.

Post-Closure Plan Revisions

There were no changes in plant operations or regulations that required revision of the Pond 8S post-closure plan.

## **ATTACHMENT A**

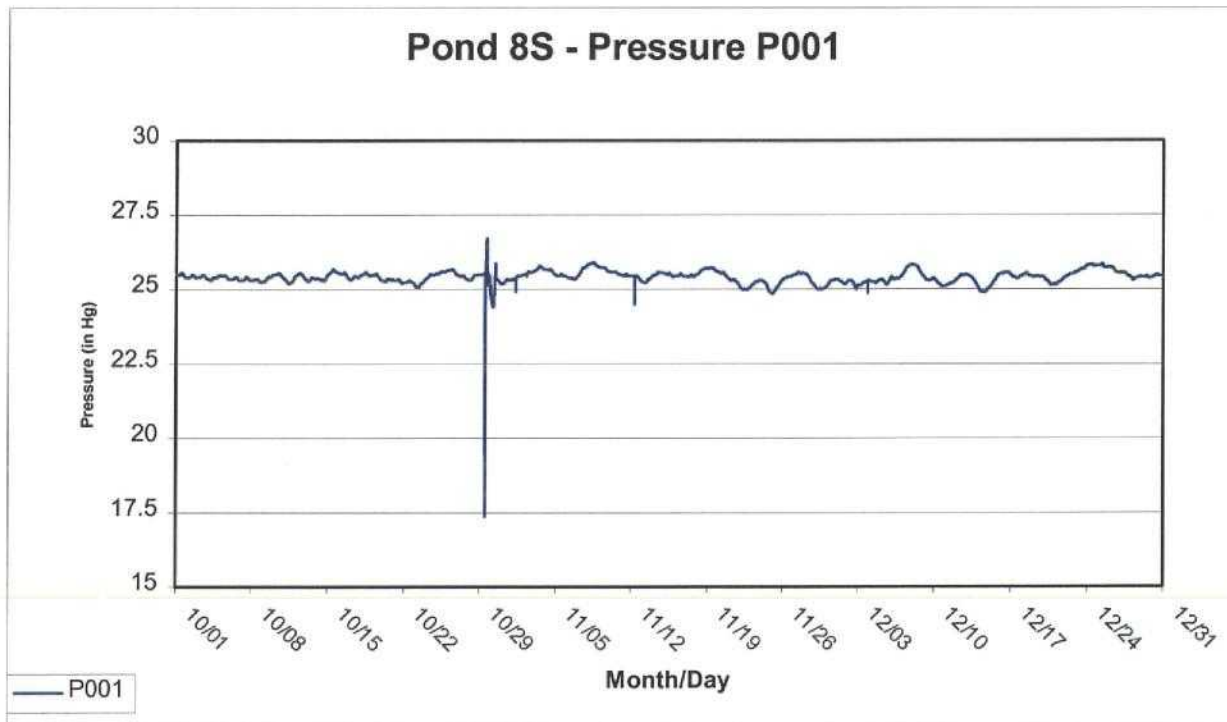
Temperature and Pressure Monitoring Results,  
Quarterly Monitoring Equipment Inspection forms, and  
Quarterly Groundcover Inspection forms

## 4<sup>th</sup> Quarter 2001

### Pond 8S Post Closure Temperature and Pressure Monitoring Results

**Summary:** The following data summary covers the period of October 1, 2001 through December 31, 2001. Temperature probes T001, T002, T003 and T004 ran without failure during the 4<sup>th</sup> quarter 2001. All temperatures remained in acceptable bands with no incident of alarms. Pressure probe P001 ran without failure during the 4<sup>th</sup> quarter 2001. The current pressure transmitter was installed on October 29, 2001, to allow for transmitter recalibration.

#### Pressure Sensor P001:

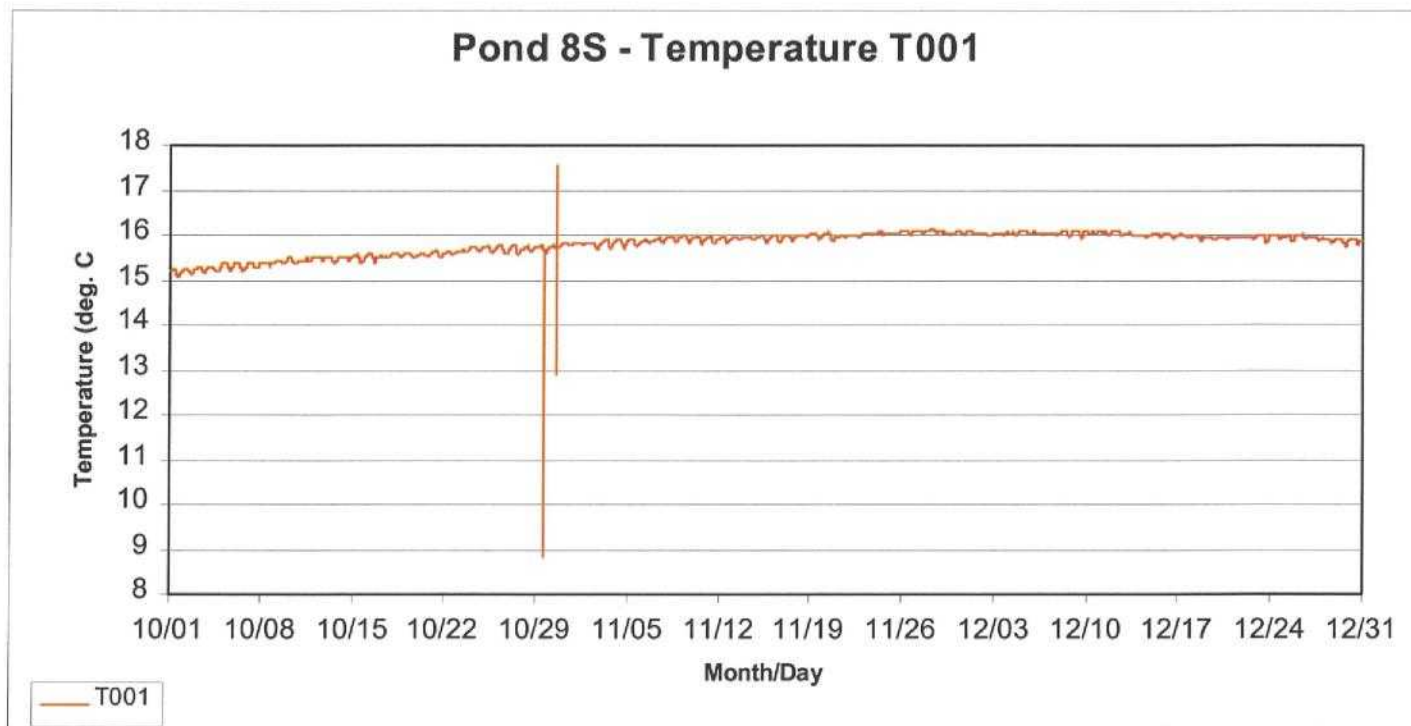


#### Summary Statistics

Number of readings:	13247
Maximum:	26.72
Minimum:	17.50
Mean:	25.41
Mode:	25.49
Median:	25.41

**Comments:** Pressure is variable across a narrow band. This is consistent with atmospheric pressures logged during this time. The pressure spike is associated with changing the pressure transmitter for calibration.

## Temperature Sensor T001:



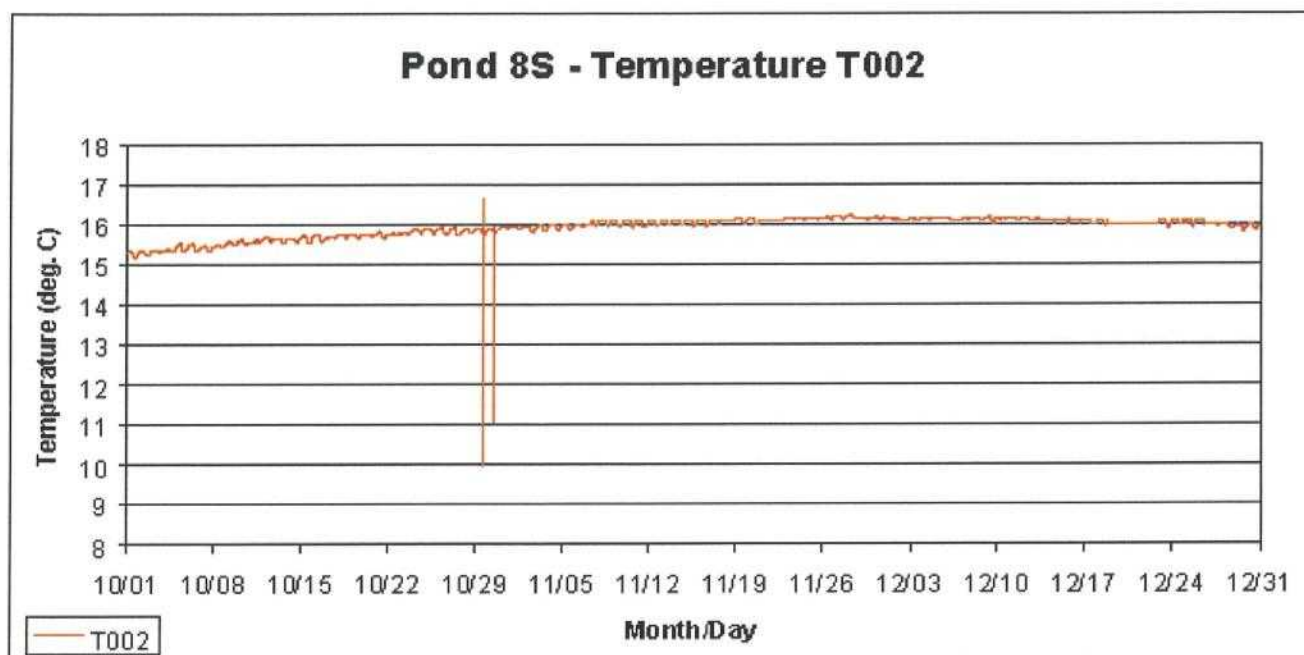
### Summary Statistics

Number of readings:	13248
Maximum:	17.46
Minimum:	8.84
Mean:	15.83
Mode:	16.06
Median:	15.92

**Comments:** Temperature had risen slowly through ~1.1 degrees C from 10/1/01 through 11/30/01. Temperature decreased through a range of ~0.3 degrees C from 11/30/2001 through 12/31/2001. Temperature spikes are associated with the temperature probe calibration checks conducted on October 29, 2001.



## Temperature Sensor T002:

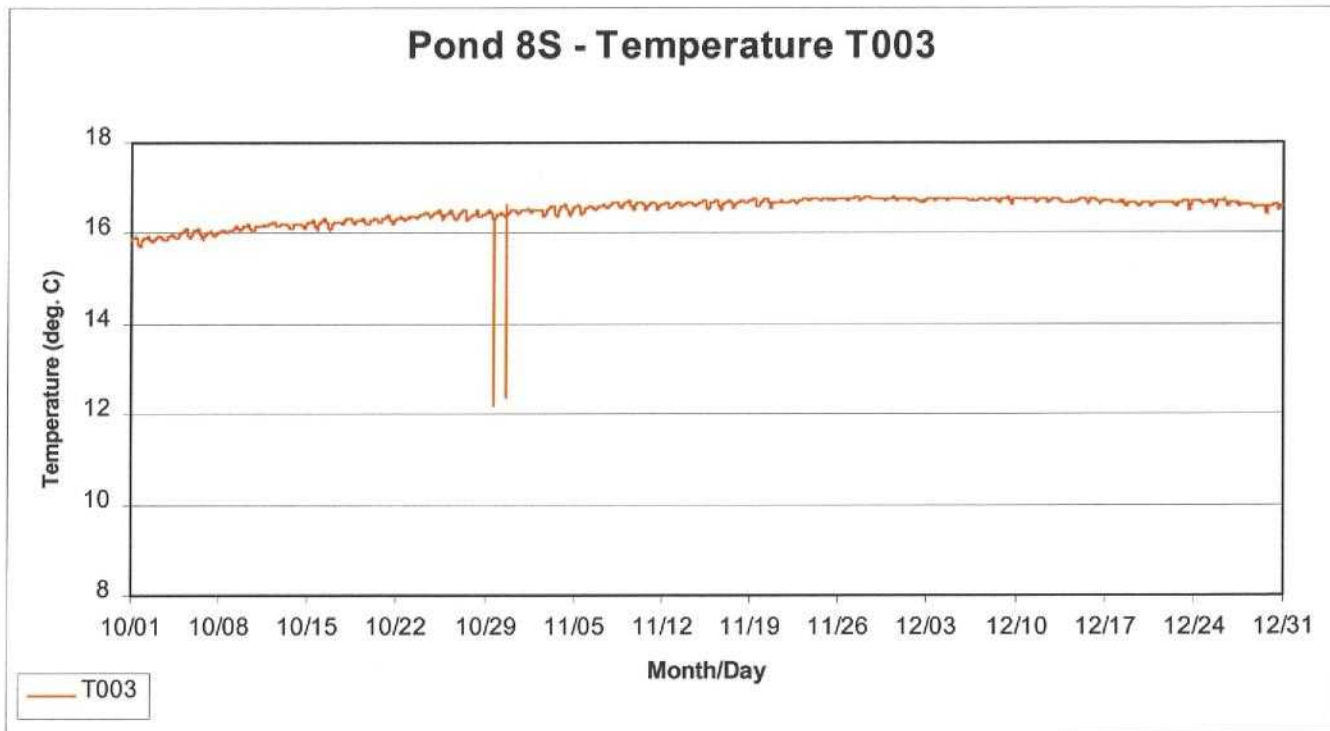


### Summary Statistics

Number of readings:	13249
Maximum:	16.54
Minimum:	9.93
Mean:	15.91
Mode:	16.14
Median:	16.01

**Comments:** Temperature had risen slowly through ~1.0 degrees C from 10/1/01 through 11/30/01. Temperature decreased through ~0.4 degrees C from 11/30/2001 through 12/31/2001. Temperature spikes are associated with the temperature probe calibration checks conducted on October 29, 2001.

## Temperature Sensor T003:

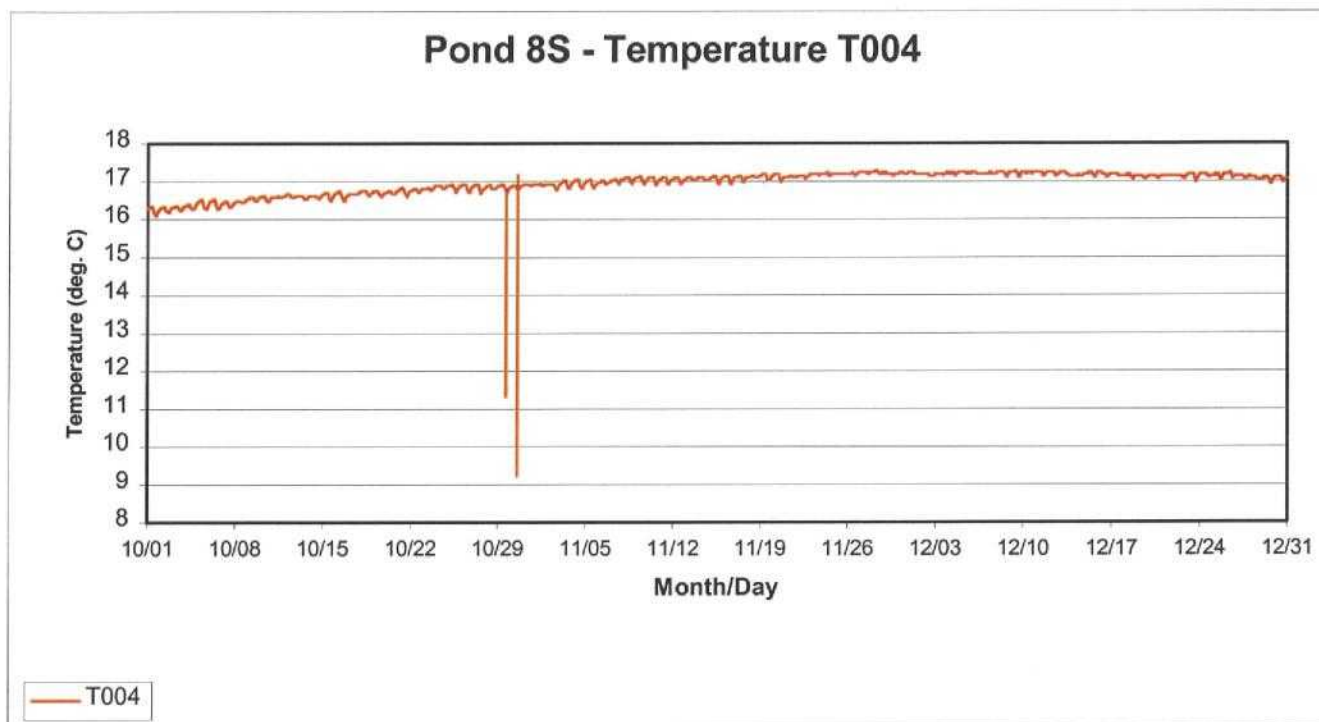


### Summary Statistics

Number of readings:	13248
Maximum:	16.80
Minimum:	12.25
Mean:	16.51
Mode:	16.76
Median:	16.62

**Comments:** Temperature had risen slowly through ~1.1 degrees C from 10/1/01 through 11/30/01. Temperature decreased through ~0.3 degrees C from 11/30/2001 through 12/31/2001. Temperature spikes are associated with the temperature probe calibration checks conducted on October 29, 2001.

## Temperature Sensor T004:



### Summary Statistics

Number of readings:	13248
Maximum:	17.28
Minimum:	9.23
Mean:	16.96
Mode:	17.19
Median:	17.06

**Comments:** Temperature had risen slowly through ~1.0 degrees C from 10/1/01 through 11/30/01. Temperature decreased through ~0.2 degrees C from 11/30/2001 through 12/31/2001. Temperature spikes are associated with the temperature probe calibration checks conducted on October 29, 2001.

Pond 8S Post Closure Inspection Record Form  
Quarterly Monitoring Equipment Inspection

Date: November 14, 2001  
Rocklan G. McDowell

Inspector: Chad M. Hedo

Time: 09:50 -  
Rocklan G. McDowell

Signature: Chad M. Hedo

Inspection Item

Inspection Result

\* Requires detailed explanation

1. Temperature Monitoring Wells (~~TT001~~, ~~TT002~~, ~~TT003~~, ~~TT004~~)

Temperature well covers intact and locked?

Acceptable X \*Unacceptable     

Explain Unacceptable Condition:

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2. Groundwater Monitoring Wells (~~185~~, ~~186~~, ~~187~~, ~~188~~, and ~~183~~): 186 183 184

Are barrier poles intact?

Acceptable      \*Unacceptable X

Are well covers intact and locked?

Acceptable X \*Unacceptable     

Explain Unacceptable Condition:

Well #183 doesn't have barrier poles around it

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3. **Pressure Monitoring Standpipe (P001)**

Standpipe intact?

Acceptable X \*Unacceptable \_\_\_\_\_

Explain Unacceptable Condition:

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4. **Soil Gas Monitoring Wells (GM-1, GM-2, GM-3, GM-4, GM-5, GM-6, GM-7, GM-8, GM-9, GM-10)**

Well covers intact and locked?

Acceptable X \*Unacceptable \_\_\_\_\_

Have quarterly monitoring samples been taken and logged?

Yes X \*No \_\_\_\_\_

Explain Unacceptable Condition:

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5. **Temperature & Pressure Alarm Panel**

Alarm sound and red light flash when tested?

Acceptable X \*Unacceptable \_\_\_\_\_

Panel in acceptable condition?

Acceptable X \*Unacceptable \_\_\_\_\_

Quarterly data downloaded and database updated?

Yes X \*No \_\_\_\_\_

Explain Unacceptable Condition:

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**6. Temperature and Pressure Data Logger Panel**

Data logger panel condition?

Acceptable ☒ \*Unacceptable ☐

Explain Unacceptable Condition:

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**7. Settlement Monuments**

Settlement monuments clear and accessible?

Acceptable ☒ \*Unacceptable ☐

Explain Unacceptable Condition:

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**8. Are any repairs or response required?**

\*Yes ☐ No ☒

If a response is required attach a copy of the work order and/or details of the maintenance and repair completed. Do this for each item as needed. Then complete the following for each item.

- a. Inspection item receiving repair \_\_\_\_\_
- b. Date and Time of completion \_\_\_\_\_
- c. Are repairs acceptable? Yes ☐ No ☐
- d. Inspector \_\_\_\_\_
- e. Signature \_\_\_\_\_

9. Follow up items addressed from previous quarter's site inspection:

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Pond 8S Post Closure Inspection Record Form

☒ Quarterly Groundcover Inspection

☐ Storm Event Inspection

Date: November 14, 2001

Time: 10:00

Inspector: Rocklan G. McDowell  
Chad M. Hodo

Signature: Rocklan G. McDowell  
Chad M. Hodo

Inspection Item

Inspection Result

\* Requires detailed explanation

1. **Vegetative Condition (Grass and Ground Cover )**

Is the grass living (root system intact)?

Acceptable X \*Unacceptable \_\_\_\_\_

Is there uniform coverage (no bare spots)?

Acceptable X \*Unacceptable \_\_\_\_\_

Explain Unacceptable Condition:

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2. **Vegetative Soil Conditions**

No excessive soil erosion?

Acceptable X \*Unacceptable \_\_\_\_\_

No excessive ruts or potholes present?

Acceptable X \*Unacceptable \_\_\_\_\_

No rodent or insect activity

(i.e., fresh soil piles or holes,...)

Acceptable X \*Unacceptable \_\_\_\_\_

Explain Unacceptable Condition:

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3. Storm Water Management

Are the swales clear of sediment and debris?

Acceptable X \*Unacceptable     

Explain Unacceptable Condition:

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4. Slopes

No sloughing or tension cracking?

Acceptable X \*Unacceptable     

No excessive channels or washouts?

Acceptable X \*Unacceptable     

Explain Unacceptable Condition:

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5. Cap Drainage Monitoring (Annual Check to be performed during 4<sup>th</sup> Quarter)

Is this the 4<sup>th</sup> quarter of the year?

\*Yes X No     

If 4<sup>th</sup> quarter measure and record volume in sub drain outlet #1

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If 4<sup>th</sup> quarter measure and record volume in sub drain outlet #2

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Total Volume

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Comments:

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6. Cap Erosion Monitoring

Perform and record the following topsoil loss measurements

<u>Topsoil Marker</u>	<u>Measurement (inches below nominal installed level)</u>
1	<u>2"</u>
2	<u>1/4"</u>
3	<u>1 1/2"</u>
4	<u>1/4"</u>
5	<u>0</u>
6	<u>1 1/2"</u>
7	<u>1"</u>

Are more than 4 of the above topsoil measurements at 5 inches or more below the installed thickness?

\*Yes \_\_\_\_ No X

Comments:

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7. Security Systems

Fencing continuous and intact?

Acceptable X \*Unacceptable \_\_\_\_

Gate locks present and functional?

Acceptable X \*Unacceptable \_\_\_\_

Monitoring camera functional?

Acceptable X \*Unacceptable \_\_\_\_

Signs posted and visible from all approaches that read "Danger- Unauthorized Personnel Keep Out"  
in English only?

Acceptable X \*Unacceptable \_\_\_\_

Explain Unacceptable Condition:

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8. Are any repairs or response required?

\*Yes \_\_\_\_\_ No X

If a response is required, attach a copy of the work order and/or details of the maintenance and repair completed. Do this for each item as needed. Then complete the following for each item:

- a. Inspection item receiving repair \_\_\_\_\_
- b. Date and Time of completion \_\_\_\_\_
- c. Are repairs acceptable?      Yes \_\_\_\_\_ No \_\_\_\_\_
- d. Inspector \_\_\_\_\_
- e. Signature \_\_\_\_\_

9. Follow up items addressed from previous quarter's site inspection:

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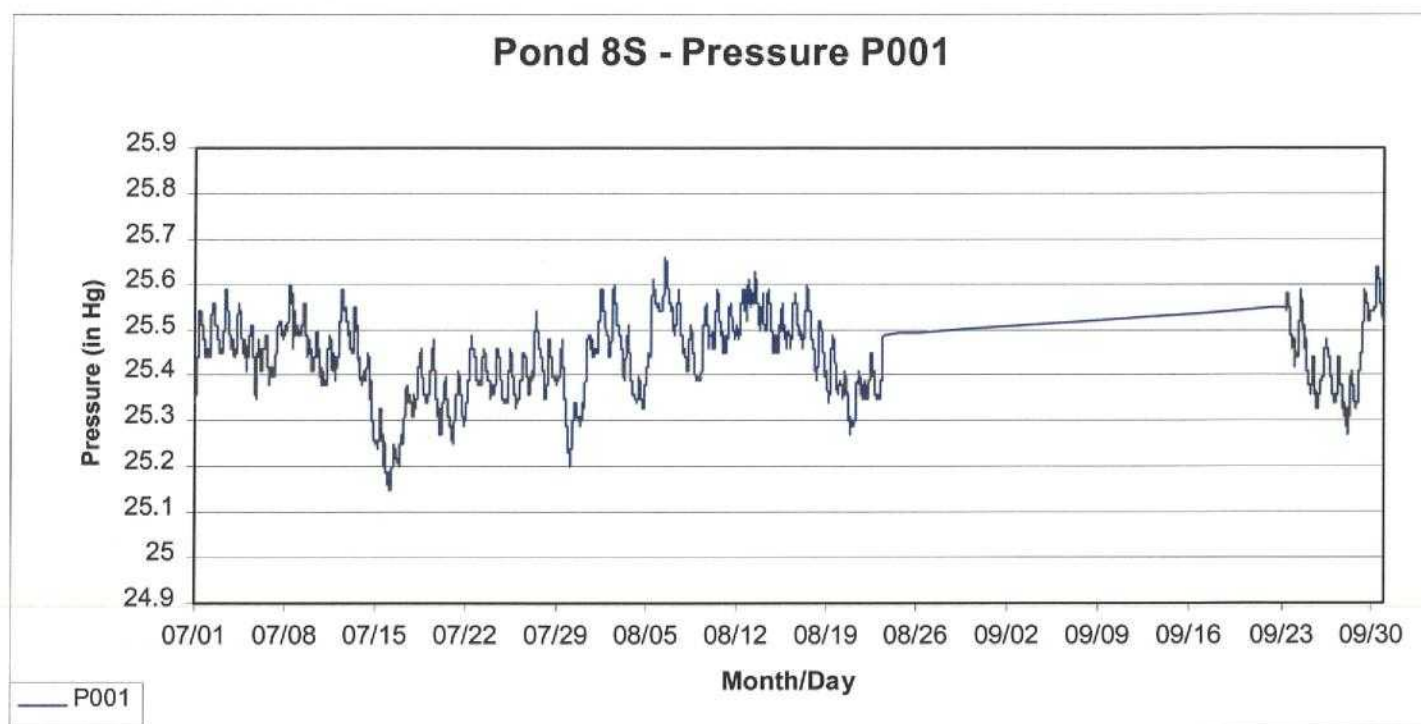
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## 3<sup>rd</sup> Quarter 2001

### Pond 8S Post Closure Temperature and Pressure Monitoring Results

**Summary:** The following data summary covers the period 7/1/2001 to 9/30/2001. Data was lost on all DRMs due to a lightning storm that occurred on 9/13/01 or a power outage that occurred on 9/15/01. Data loss was recorded for P001 from 8/23/01 @ 09:34 to 9/23/01 @ 09:22. Data loss was recorded for T001 from 8/23/01 @ 09:31 to 09/20/01 @ 14:22. Data loss was recorded for T002 from 8/23/01 @ 09:42 to 09/20/01 @ 14:10. Data loss was recorded for T003 from 8/23/01 @ 09:33 to 09/20/01 @ 14:06. Data loss was recorded for T004 from 8/23/01 @ 09:33 to 09/20/01 @ 14:26.

#### Pressure Sensor P001:



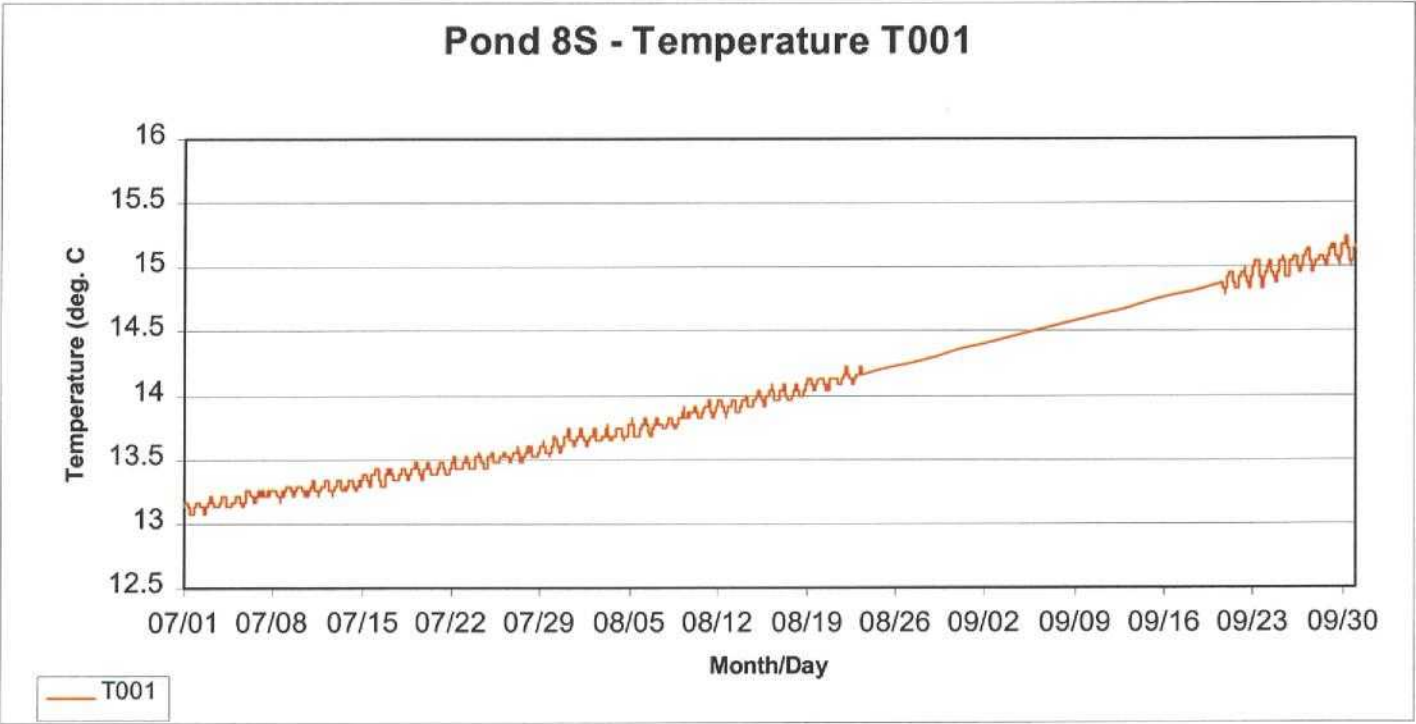
#### Summary Statistics

Number of readings: 8786
Maximum: 25.66
Minimum: 25.15
Mean: 25.44
Mode: 25.45
Median: 25.45

**Comments:** Pressure is variable across a narrow band of 0.51inHg. This is consistent with atmospheric pressures logged during this time.



Temperature Sensor T001:

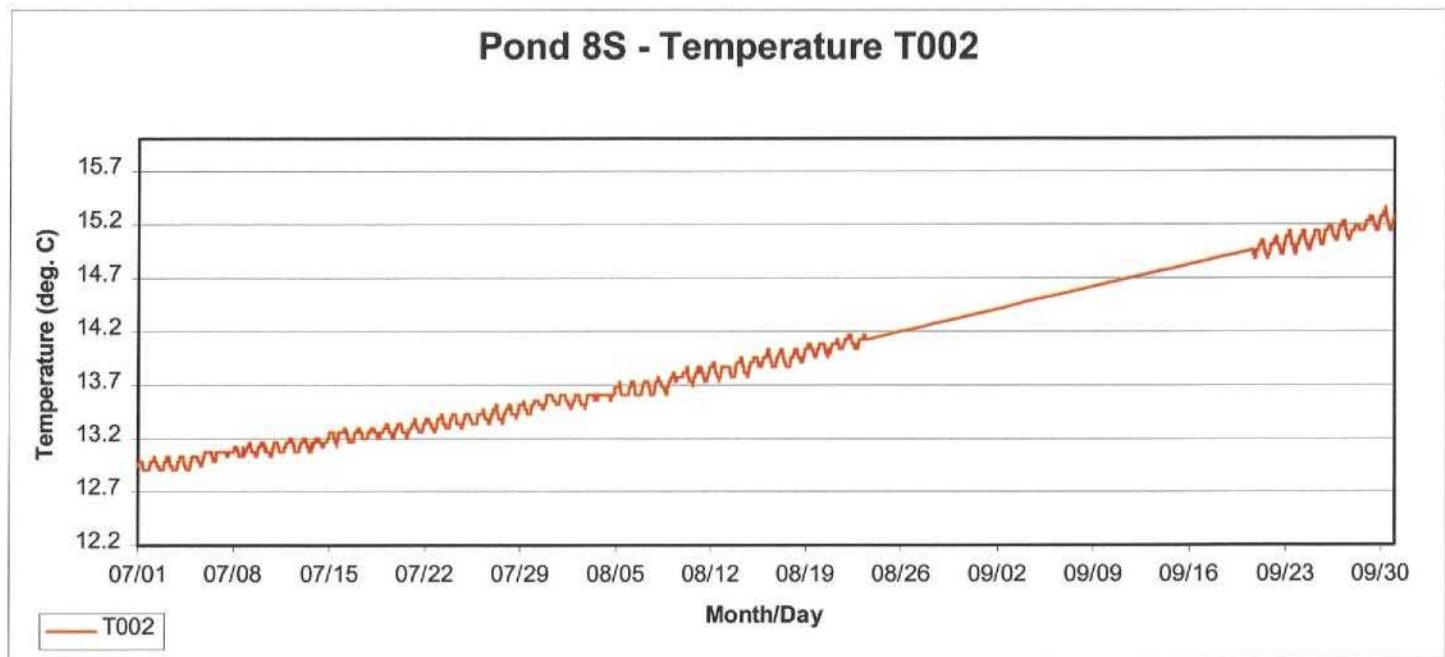


Summary Statistics

Number of readings: 9188
Maximum: 15.23
Minimum: 13.08
Mean: 13.82
Mode: 13.26
Median: 13.69

Comments: Temperature had decreased slowly through a 2.15-degree range during the period from 7/1/2001 to 9/30/2001.

Temperature Sensor T002:

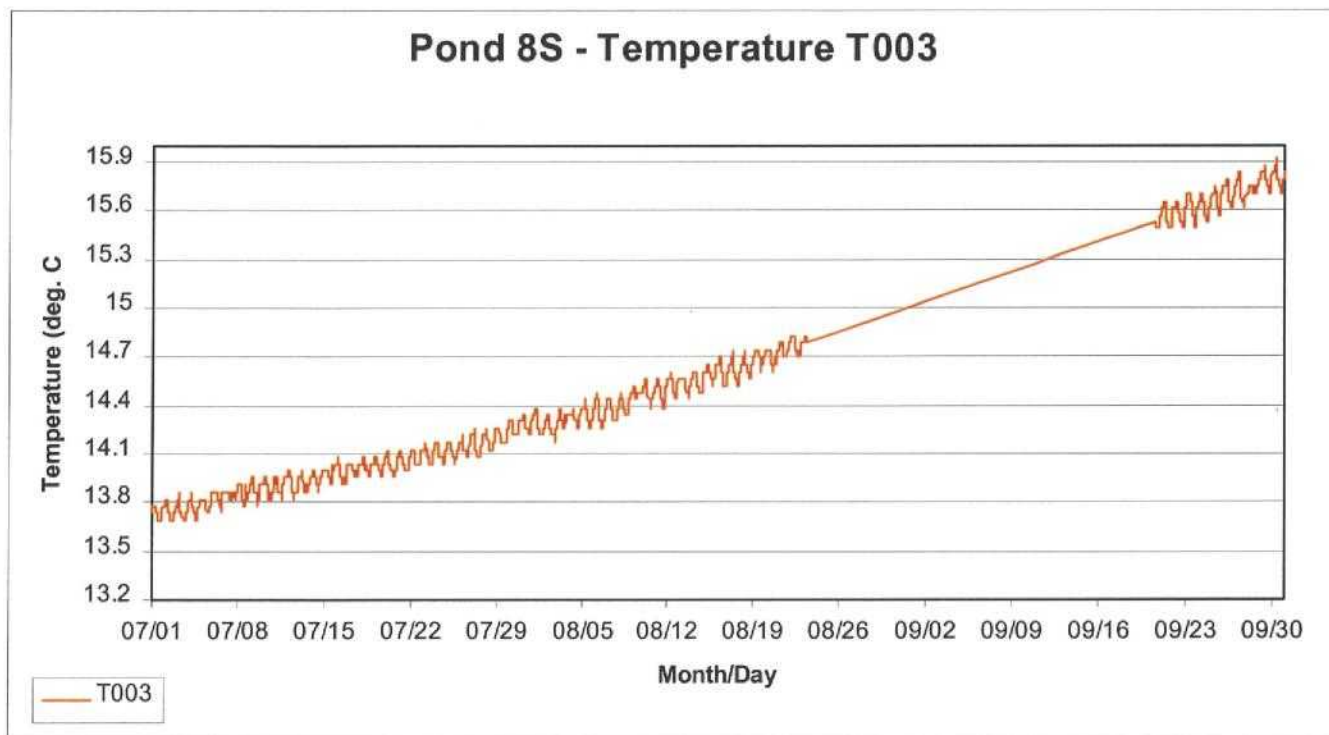


Summary Statistics

Number of readings: 9190
Maximum: 15.36
Minimum: 12.91
Mean: 13.74
Mode: 13.61
Median: 13.61

Comments: Temperature had decreased slowly through a 2.45-degree range during the period from 7/1/2001 to 9/30/2001.

## Temperature Sensor T003:

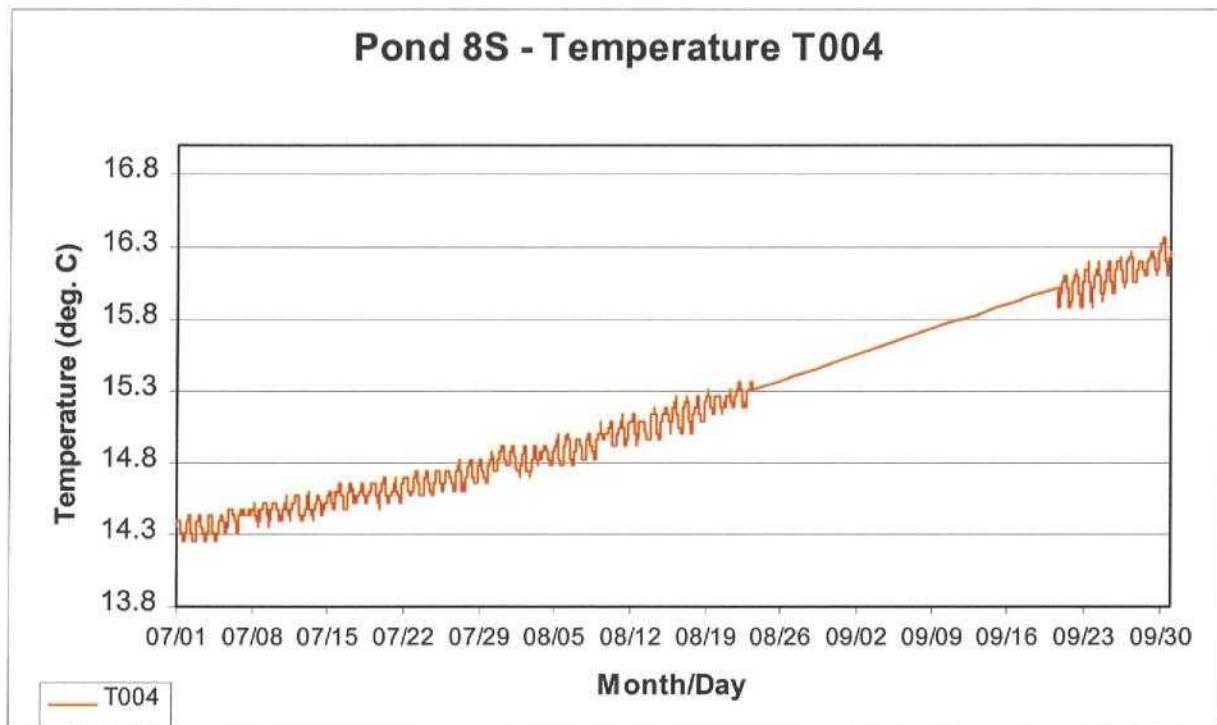


## Summary Statistics

Number of readings: 9190
Maximum: 15.92
Minimum: 13.69
Mean: 14.45
Mode: 13.87
Median: 14.31

**Comments:** Temperature had decreased slowly through a 2.23-degree range during the period from 7/1/2001 to 9/30/2001.

Temperature Sensor T004:



Summary Statistics

Number of readings: 9188
Maximum: 16.36
Minimum: 14.26
Mean: 14.98
Mode: 14.66
Median: 14.83

Comments: Temperature had decreased slowly through a 2.10-degree range during the period from 7/1/2001 to 9/30/2001.



Pond 8S Post Closure Inspection Record Form

☒ Quarterly Groundcover Inspection

☐ Storm Event Inspection

Date: 8-23-01

Time: 9:40 am

Inspector: VALERIE BERTI

Signature: Valerie A. Berti

Inspection Item

Inspection Result

\* Requires detailed explanation

1. **Vegetative Condition (Grass and Ground Cover)**

Is the grass living (root system intact)?

Acceptable ☒ \*Unacceptable ☐

Is there uniform coverage (no bare spots)?

Acceptable ☒ \*Unacceptable ☐

Explain Unacceptable Condition:

Vegetation is covering entire pond cap  
at ~ 2" to 18" high.

2. **Vegetative Soil Conditions**

No excessive soil erosion?

Acceptable ☒ \*Unacceptable ☐

No excessive ruts or potholes present?

Acceptable ☒ \*Unacceptable ☐

No rodent or insect activity

(i.e., fresh soil piles or holes,...)

Acceptable ☒ \*Unacceptable ☐

Explain Unacceptable Condition:

3. Storm Water Management

Are the swales clear of sediment and debris?

Acceptable ☒ \*Unacceptable ☐

Explain Unacceptable Condition:

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4. Slopes

No sloughing or tension cracking?

Acceptable ☒ \*Unacceptable ☐

No excessive channels or washouts?

Acceptable ☒ \*Unacceptable ☐

Explain Unacceptable Condition:

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5. Cap Drainage Monitoring (Annual Check to be performed during 4<sup>th</sup> Quarter)

Is this the 4<sup>th</sup> quarter of the year?

\*Yes ☐ No ☒

If 4<sup>th</sup> quarter measure and record volume in sub drain outlet #1

If 4<sup>th</sup> quarter measure and record volume in sub drain outlet #2

Total Volume

Comments:

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## 6. Cap Erosion Monitoring

Perform and record the following topsoil loss measurements

<u>Topsoil Marker</u>	<u>Measurement (inches below nominal installed level)</u>
1	<u>2"</u>
2	<u>1/4"</u>
3	<u>1 1/2"</u>
4	<u>1/4"</u>
5	<u>0"</u>
6	<u>1 1/2"</u>
7	<u>1"</u>

Are more than 4 of the above topsoil measurements at 5 inches or more below the installed thickness?

\*Yes \_\_\_\_\_ No ✓

Comments:

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## 7. Security Systems

Fencing continuous and intact?

Acceptable ✓ \*Unacceptable \_\_\_\_\_

Gate locks present and functional?

Acceptable ✓ \*Unacceptable \_\_\_\_\_

Monitoring camera functional?

Acceptable N/A \*Unacceptable \_\_\_\_\_

Signs posted and visible from all approaches that read "Danger- Unauthorized Personnel Keep Out" in English only?

Acceptable ✓ \*Unacceptable \_\_\_\_\_

Explain Unacceptable Condition:

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8. Are any repairs or response required?

\*Yes \_\_\_\_\_ No ☒

If a response is required, attach a copy of the work order and/or details of the maintenance and repair completed. Do this for each item as needed. Then complete the following for each item:

- a. Inspection item receiving repair \_\_\_\_\_
- b. Date and Time of completion \_\_\_\_\_
- c. Are repairs acceptable? Yes ☐ No ☐
- d. Inspector \_\_\_\_\_
- e. Signature \_\_\_\_\_

9. Follow up items addressed from previous quarter's site inspection:

*No follow up items needed to be addressed.*

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Pond 8S Post Closure Inspection Record Form  
Quarterly Monitoring Equipment Inspection

Date: 8-23-01

Time: 9:40 am

Inspector: VALERIE BERTI

Signature: Valerie A. Berti

Inspection Item

Inspection Result

*\* Requires detailed explanation*

1. Temperature Monitoring Wells (TT001, TT002, TT003, TT004)

Temperature well covers intact and locked?

Acceptable ☒ \*Unacceptable ☐

Explain Unacceptable Condition:

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2. Groundwater Monitoring Wells (155, 156, 157, 158, and 183):

Are barrier poles intact?

Acceptable ☒ \*Unacceptable ☐

Are well covers intact and locked?

Acceptable ☒ \*Unacceptable ☐

Explain Unacceptable Condition:

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3. Pressure Monitoring Standpipe (P001)

Standpipe intact?

Acceptable ☒ \*Unacceptable \_\_\_\_\_

Explain Unacceptable Condition:

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4. Soil Gas Monitoring Wells (GM-1, GM-2, GM-3, GM-4, GM-5, GM-6, GM-7, GM-8, GM-9, GM-10)

Well covers intact and locked?

Acceptable ☒ \*Unacceptable \_\_\_\_\_

Have quarterly monitoring samples been taken and logged?

Yes ☒ \*No \_\_\_\_\_

Explain Unacceptable Condition:

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5. Temperature & Pressure Alarm Panel

Alarm sound and red light flash when tested?

Acceptable ☒ \*Unacceptable \_\_\_\_\_

Panel in acceptable condition?

Acceptable ☒ \*Unacceptable \_\_\_\_\_

Quarterly data downloaded and database updated?

\*\* Yes ☒ \*No \_\_\_\_\_

Explain Unacceptable Condition:

\*\* Data is downloaded to date (8/23/01). Remainder of data will be downloaded after the end of 3<sup>rd</sup> QTR.

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**6. Temperature and Pressure Data Logger Panel**

Data logger panel condition?

Acceptable ☒ \*Unacceptable ☐

Explain Unacceptable Condition:

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**7. Settlement Monuments**

Settlement monuments clear and accessible?

Acceptable ☒ \*Unacceptable ☐

Explain Unacceptable Condition:

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**8. Are any repairs or response required?**

\*Yes ☐ No ☒

If a response is required attach a copy of the work order and/or details of the maintenance and repair completed. Do this for each item as needed. Then complete the following for each item.

- a. Inspection item receiving repair \_\_\_\_\_
- b. Date and Time of completion \_\_\_\_\_
- c. Are repairs acceptable?      Yes ☐ No ☐
- d. Inspector \_\_\_\_\_
- e. Signature \_\_\_\_\_

9. Follow up items addressed from previous quarter's site inspection:

*No follow up items needed to be addressed.*

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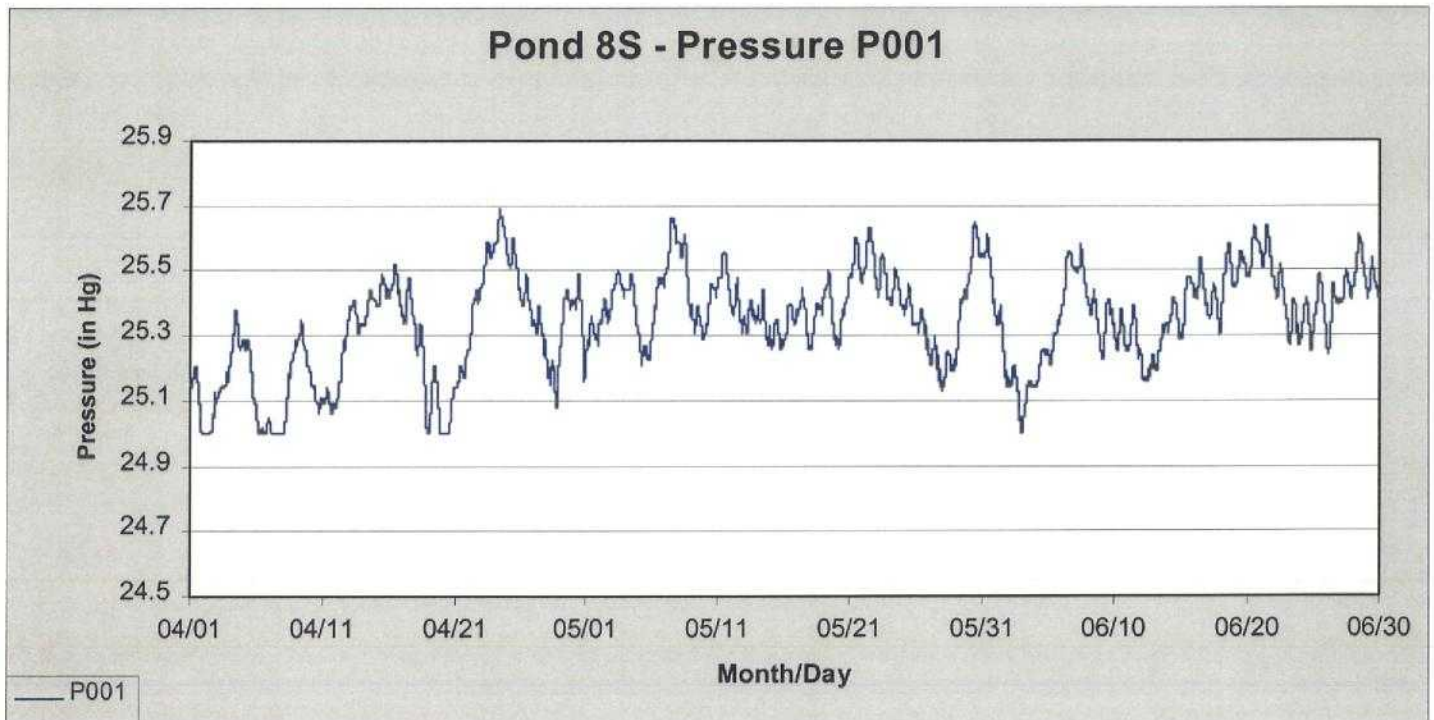
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## 2<sup>nd</sup> Quarter 2001

### Pond 8S Post Closure Temperature and Pressure Monitoring Results

**Summary:** All systems functioned without error during the 2<sup>nd</sup> quarter 2001 period from 4/1/2001 to 6/30/2001 and no data was lost for pressure probe P001 and all four temperature probes T001, T002, T003, and T004.

#### Pressure Sensor P001:

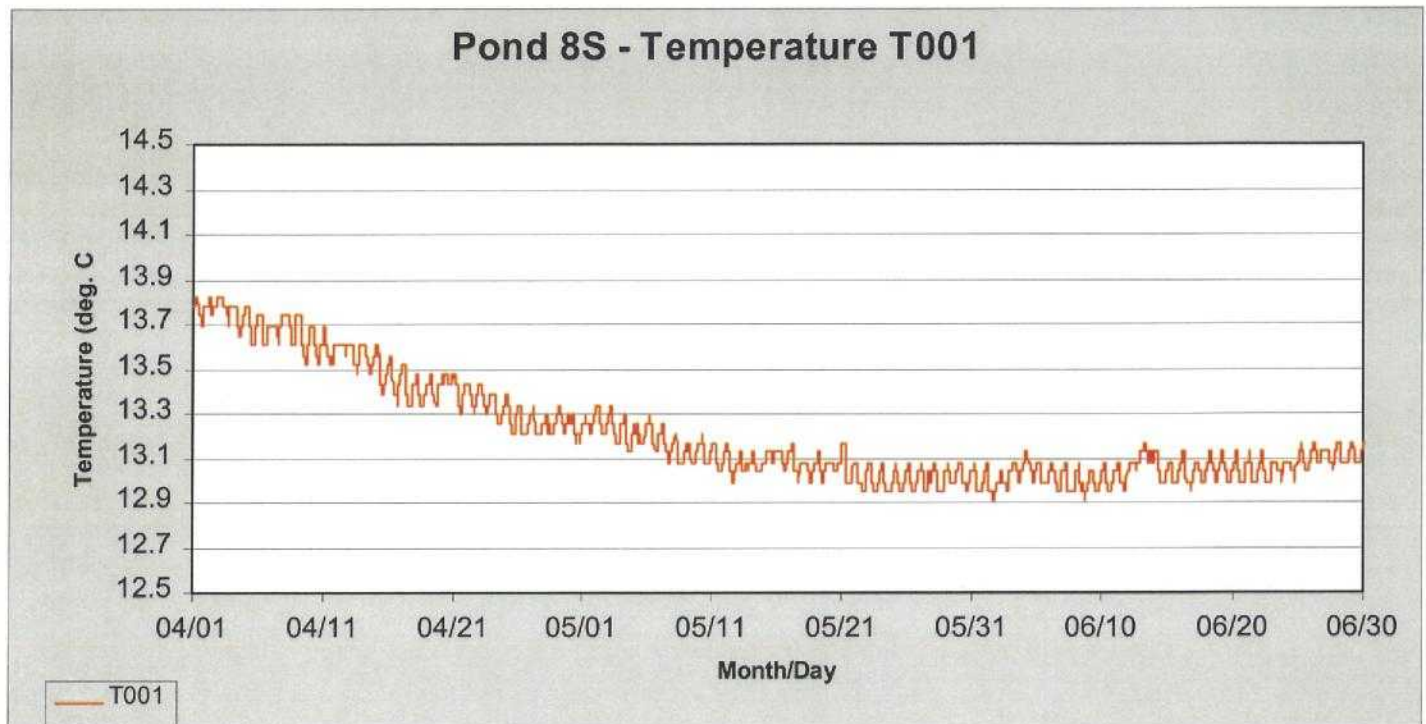


#### Summary Statistics

Number of readings:	13104
Maximum:	25.69
Minimum:	25.00
Mean:	25.35
Mode:	25.44
Median:	25.36

**Comments:** Pressure is variable across a narrow band of .69inHg. This is consistent with atmospheric pressures logged during this time.

## Temperature Sensor T001:



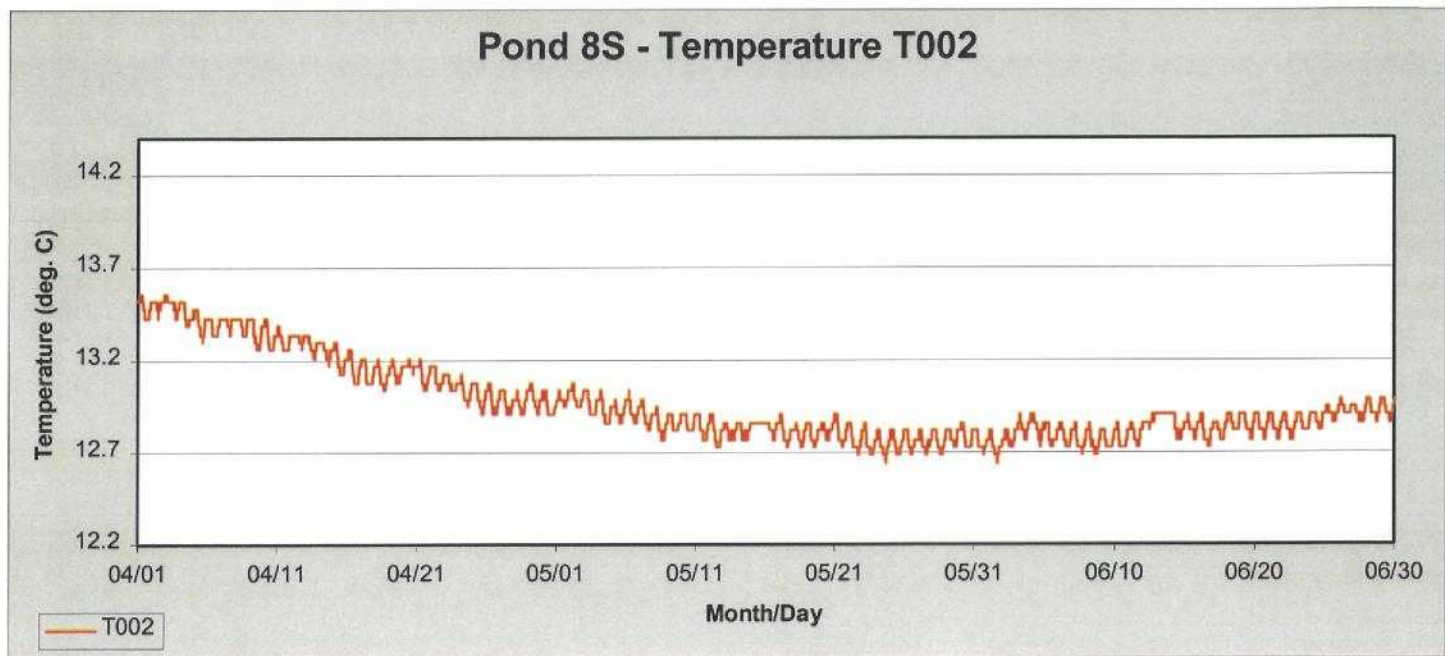
### Summary Statistics

Number of readings:	13105
Maximum:	13.82
Minimum:	12.91
Mean:	13.21
Mode:	13.08
Median:	13.13

**Comments:** Temperature had decreased slowly through a .91-degree range during the period from 4/1/2001 to 6/30/2001.



Temperature Sensor T002:

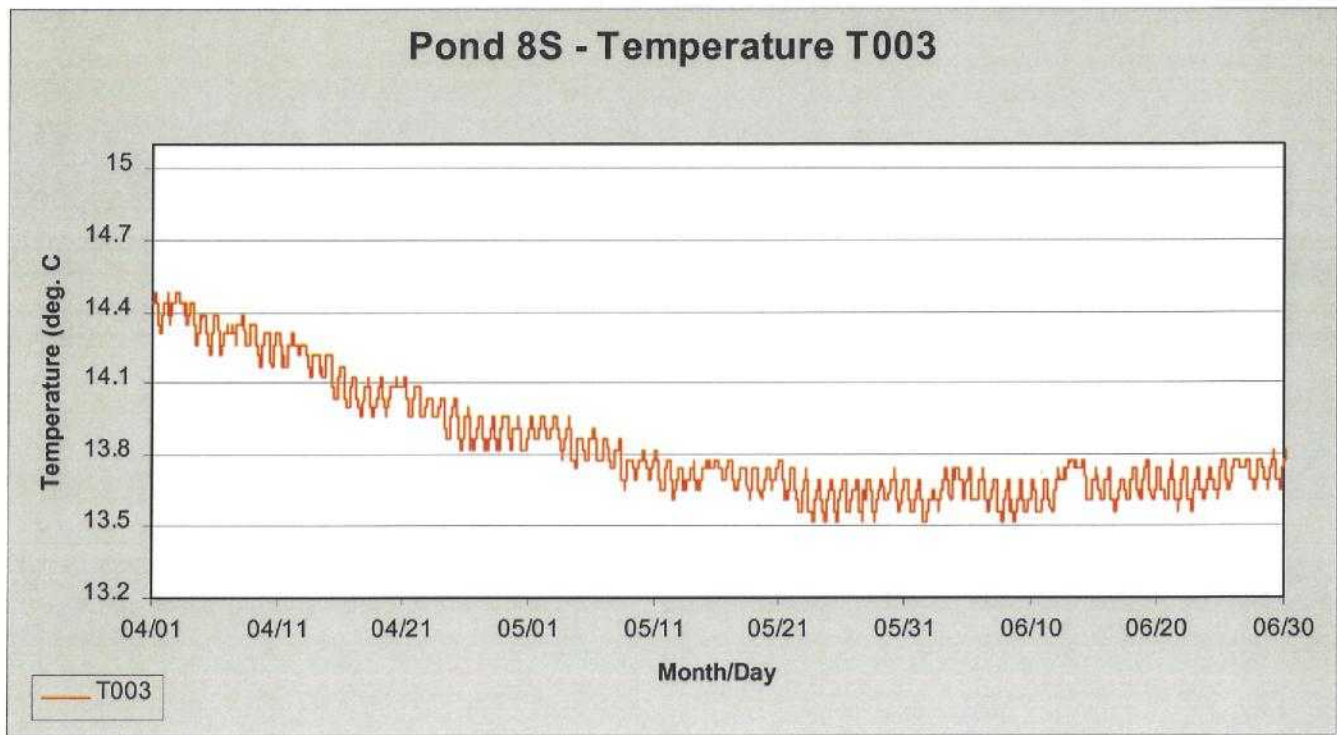


Summary Statistics

Number of readings: 13104
Maximum: 13.56
Minimum: 12.64
Mean: 12.96
Mode: 12.82
Median: 12.91

Comments: Temperature had decreased slowly through a .92-degree range during the period from 4/1/2001 to 6/30/2001.

Temperature Sensor T003:

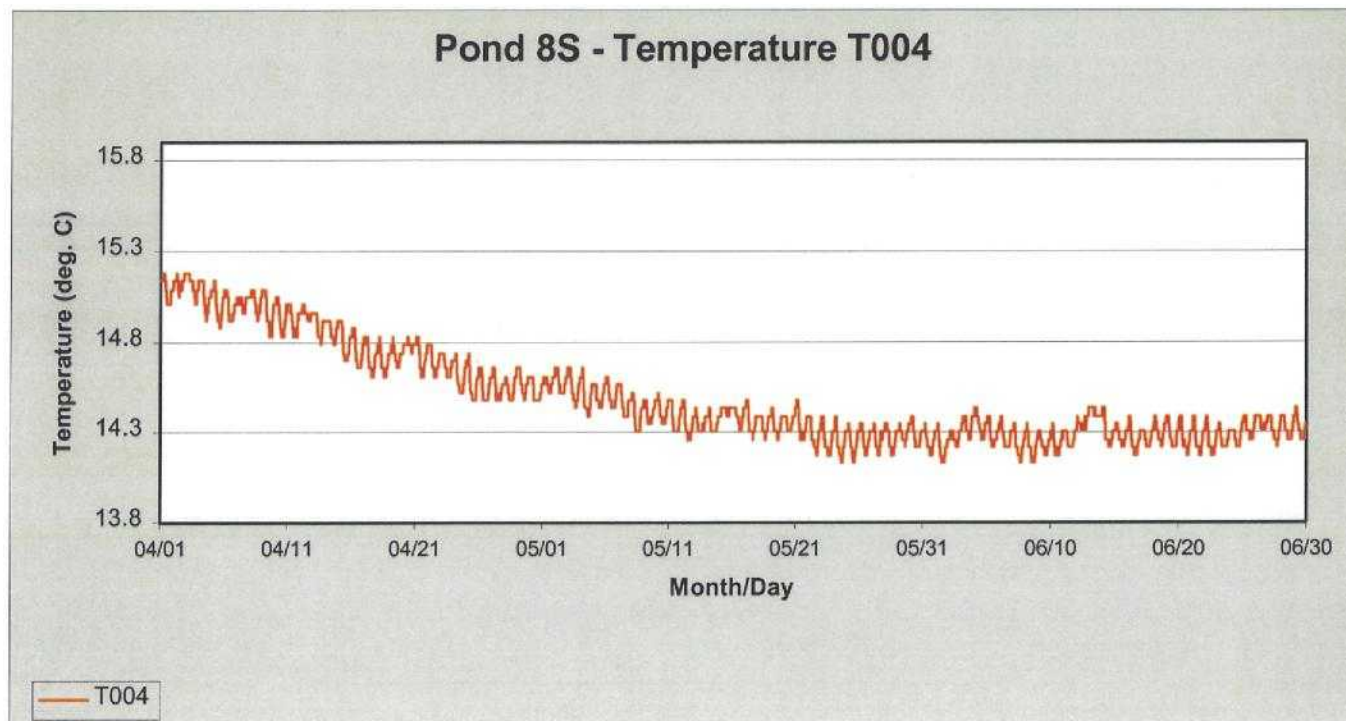


Summary Statistics

Number of readings: 13104
Maximum: 14.48
Minimum: 13.52
Mean: 13.84
Mode: 13.69
Median: 13.74

Comments: Temperature had decreased slowly through a .96-degree range during the period from 4/1/2001 to 6/30/2001.

## Temperature Sensor T004:



### Summary Statistics

Number of readings:
Maximum:
Minimum:
Mean:
Mode:
Median:

**Comments:** Temperature had decreased slowly through a 1.05-degree range during the period from 4/1/2001 to 6/30/2001.

Pond 8S Post Closure Inspection Record Form

☒ Quarterly Groundcover Inspection

☐ Storm Event Inspection

Date: 06/29/01

Time: 0910

Inspector: VALERIE A. BERTI

Signature: Valerie A. Berti

Inspection Item

Inspection Result

\* Requires detailed explanation

1. **Vegetative Condition (Grass and Ground Cover)**

Is the grass living (root system intact)?

Acceptable X \*Unacceptable \_\_\_\_\_

Is there uniform coverage (no bare spots)?

Acceptable X \*Unacceptable \_\_\_\_\_

Explain Unacceptable Condition:

New vegetation covering pond caps @ 6 to 8"  
high. Old vegetation thinning out.

2. **Vegetative Soil Conditions**

No excessive soil erosion?

Acceptable X \*Unacceptable \_\_\_\_\_

No excessive ruts or potholes present?

Acceptable X \*Unacceptable \_\_\_\_\_

No rodent or insect activity

(i.e., fresh soil piles or holes,...)

Acceptable \_\_\_\_\_ \*Unacceptable X

Explain Unacceptable Condition:

2 feet east of north- TT002 well is evidence  
of med-size animal nest along w/  
droppings (not deer). Grass was flattened  
indicating where animal had lain on NE  
side of TT002.

3. Storm Water Management

Are the swales clear of sediment and debris?

Acceptable \_\_\_\_\_ \*Unacceptable X

Explain Unacceptable Condition:

Minor debris in swales cleared  
out.

4. Slopes

No sloughing or tension cracking?

Acceptable X \*Unacceptable \_\_\_\_\_

No excessive channels or washouts?

Acceptable X \*Unacceptable \_\_\_\_\_

Explain Unacceptable Condition:

5. Cap Drainage Monitoring (Annual Check to be performed during 4<sup>th</sup> Quarter)

Is this the 4<sup>th</sup> quarter of the year?

\*Yes \_\_\_\_\_ No X

If 4<sup>th</sup> quarter measure and record volume in sub drain outlet #1

NA

If 4<sup>th</sup> quarter measure and record volume in sub drain outlet #2

NA

Total Volume

NA

Comments:



## 6. Cap Erosion Monitoring

Perform and record the following topsoil loss measurements

Topsoil Marker	Measurement (inches below nominal installed level)
1	<u>3/4 "</u>
2	<u>1/4 "</u>
3	<u>1"</u>
4	<u>1/4 "</u>
5	<u>0"</u>
6	<u>1"</u>
7	<u>1"</u>

Are more than 4 of the above topsoil measurements at 5 inches or more below the installed thickness?

\*Yes ☐ No ☒

Comments:

The "inches below nominal installed level" are less on some markers than last quarter due to the change in the way the measurement was taken. Erosion can occur around a marker without a change in <sup>total</sup> cap erosion. The new measurement process takes this into account.

## 7. Security Systems

Fencing continuous and intact? Acceptable ☒ \*Unacceptable ☐

Gate locks present and functional? Acceptable ☒ \*Unacceptable ☐

Monitoring camera functional? Acceptable ☒ \*Unacceptable ☐

Signs posted and visible from all approaches that read "Danger- Unauthorized Personnel Keep Out" in English only? Acceptable ☒ \*Unacceptable ☐

Explain Unacceptable Condition:

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8. Are any repairs or response required?

\*Yes \_\_\_\_\_ No X

If a response is required, attach a copy of the work order and/or details of the maintenance and repair completed. Do this for each item as needed. Then complete the following for each item:

- a. Inspection item receiving repair \_\_\_\_\_
- b. Date and Time of completion \_\_\_\_\_
- c. Are repairs acceptable?      Yes \_\_\_\_\_ No \_\_\_\_\_
- d. Inspector \_\_\_\_\_
- e. Signature \_\_\_\_\_

9. Follow up items addressed from previous quarter's site inspection:

No follow up items needed to be  
addressed.

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Pond 8S Post Closure Inspection Record Form  
Quarterly Monitoring Equipment Inspection

Date: 6/29/01

Time: 0910

Inspector: VALERIE A. BERTI

Signature: Valerie A. Berti

Inspection Item

Inspection Result

\* Requires detailed explanation

1. Temperature Monitoring Wells (TT001, TT002, TT003, TT004)

Temperature well covers intact and locked?

Acceptable X \*Unacceptable \_\_\_\_\_

Explain Unacceptable Condition:

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2. Groundwater Monitoring Wells (155, 156, 157, 158, and 183):

Are barrier poles intact?

Acceptable X \*Unacceptable \_\_\_\_\_

Are well covers intact and locked?

Acceptable X \*Unacceptable \_\_\_\_\_

Explain Unacceptable Condition:

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3. Pressure Monitoring Standpipe (P001)

Standpipe intact?

Acceptable X \*Unacceptable \_\_\_\_\_

Explain Unacceptable Condition:

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4. Soil Gas Monitoring Wells (GM-1, GM-2, GM-3, GM-4, GM-5, GM-6, GM-7, GM-8, GM-9, GM-10)

Well covers intact and locked?

Acceptable X \*Unacceptable \_\_\_\_\_

Have quarterly monitoring samples been taken and logged?

Yes X \*No \_\_\_\_\_

Explain Unacceptable Condition:

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5. Temperature & Pressure Alarm Panel

Alarm sound and red light flash when tested?

Acceptable X \*Unacceptable \_\_\_\_\_

Panel in acceptable condition?

Acceptable X \*Unacceptable \_\_\_\_\_

Quarterly data downloaded and database updated?

Yes \_\_\_\_\_ \*No X

Explain Unacceptable Condition:

*Remainder of 2<sup>nd</sup> quarterly data will be downloaded on July 2<sup>nd</sup>, 2001.*

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**6. Temperature and Pressure Data Logger Panel**

Data logger panel condition?

Acceptable X \*Unacceptable \_\_\_\_\_

Explain Unacceptable Condition:

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**7. Settlement Monuments**

Settlement monuments clear and accessible?

Acceptable X \*Unacceptable \_\_\_\_\_

Explain Unacceptable Condition:

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**8. Are any repairs or response required?**

\*Yes \_\_\_\_\_ No X

If a response is required attach a copy of the work order and/or details of the maintenance and repair completed. Do this for each item as needed. Then complete the following for each item.

- a. Inspection item receiving repair N/A
- b. Date and Time of completion N/A
- c. Are repairs acceptable? Yes \_\_\_\_\_ No \_\_\_\_\_
- d. Inspector N/A
- e. Signature N/A

9. Follow up items addressed from previous quarter's site inspection:

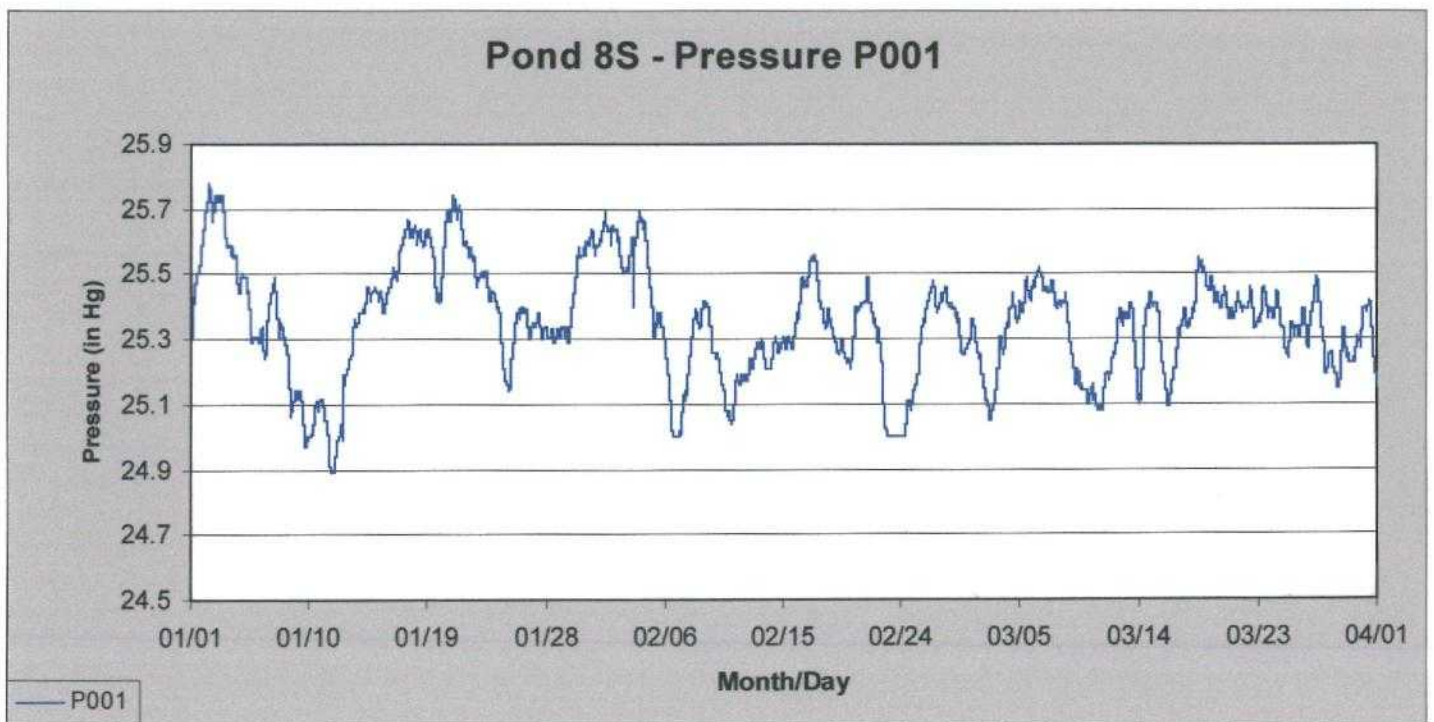
*No follow-up items needed to be addressed.*

## 1<sup>st</sup> Quarter 2001

### Pond 8S Post Closure Temperature and Pressure Monitoring Results

**Summary:** Data loss was recorded for Temperature Probes T001 and T003 from 1/1/2001 to 1/12/2001 due to the failure of the Data Recorder Modules (DRM) during the 4<sup>th</sup> quarter 2000. The new DRMs were returned by the manufacturer and installed on T001 and T003 on 1/12/2001. Data was continuously recorded for the remainder of the 1<sup>st</sup> quarter 2001 for these two temperature probes. No data was lost for the entire quarter for Pressure Probe P001 and Temperature Probes T002 and T004.

#### Pressure Sensor P001:



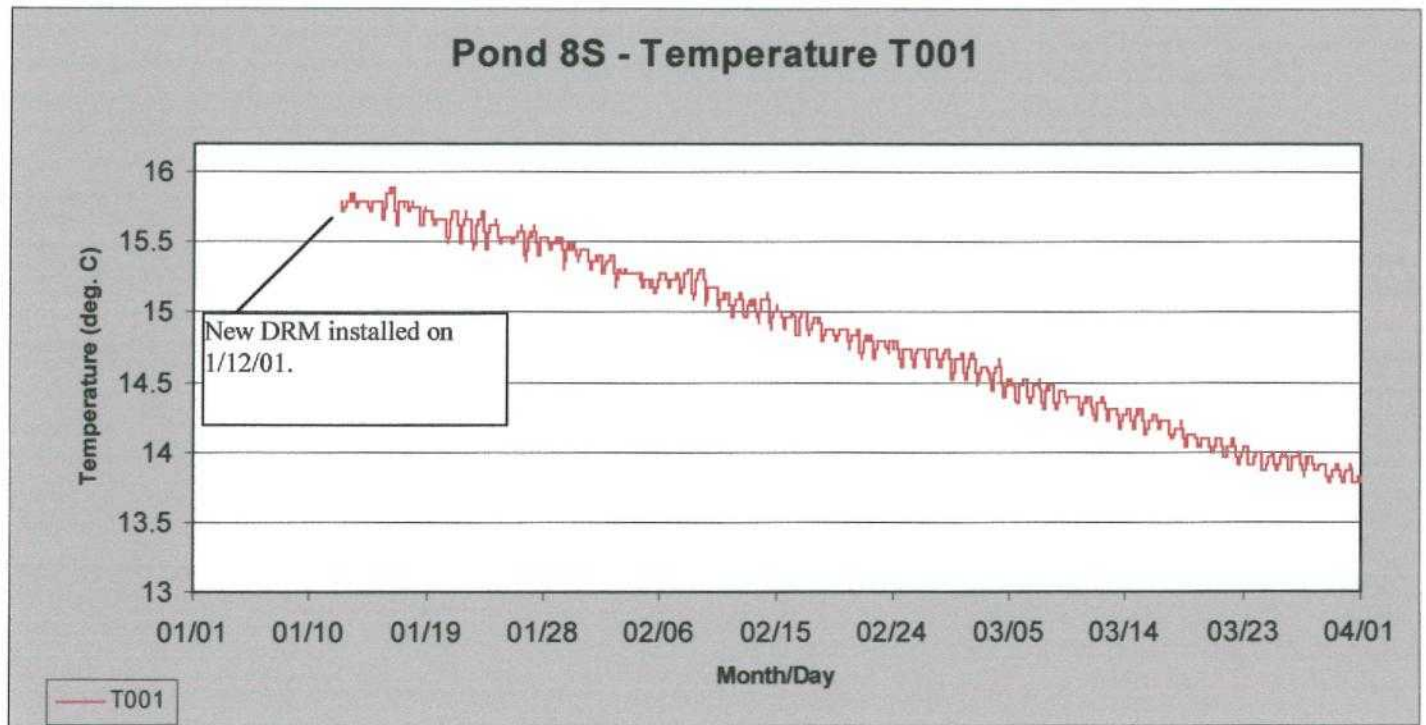
#### Summary Statistics

Number of readings: 12954
Maximum: 25.78
Minimum: 24.89
Mean: 25.35
Mode: 25.39
Median: 25.36

**Comments:** Pressure is variable across a narrow band of .89. This is consistent with atmospheric pressures logged during this time.



## Temperature Sensor T001:

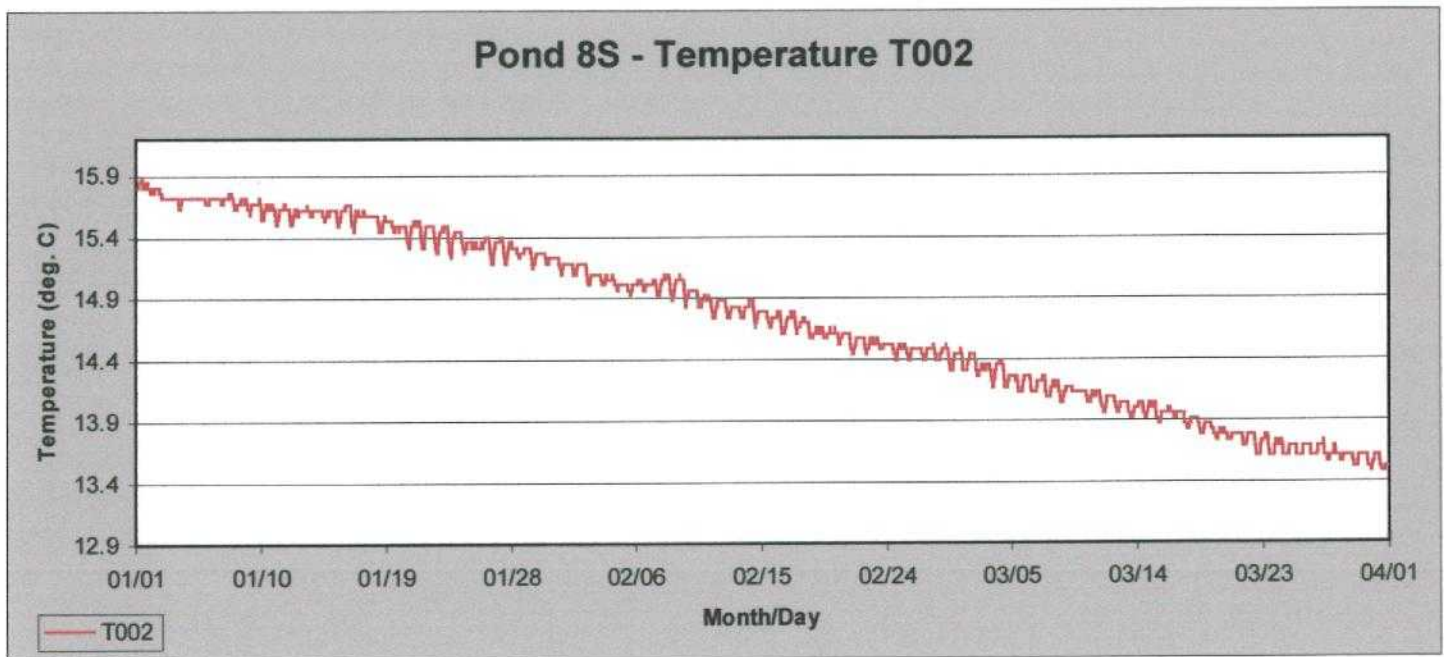


### Summary Statistics

Number of readings:	11527
Maximum:	15.88
Minimum:	13.78
Mean:	14.85
Mode:	15.79
Median:	14.83

**Comments:** Temperature had decreased slowly through a 2.1-degree range during the period from 1/12/2001 to 3/31/2001.

## Temperature Sensor T002:

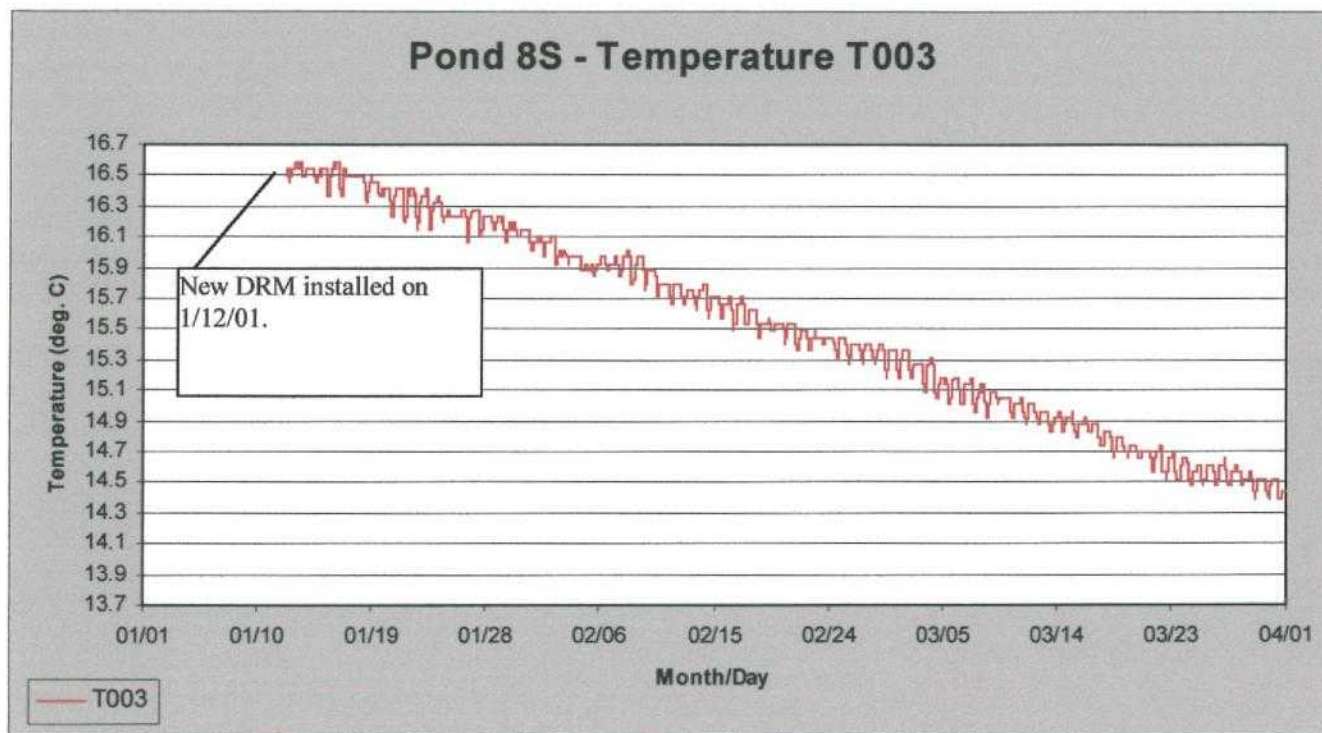


### Summary Statistics

Number of readings: 12953
Maximum: 15.89
Minimum: 13.48
Mean: 14.74
Mode: 15.72
Median: 14.74

**Comments:** Temperature had decreased slowly through a 2.41-degree range during the period from 1/1/2001 to 3/31/2001.

## Temperature Sensor T003:

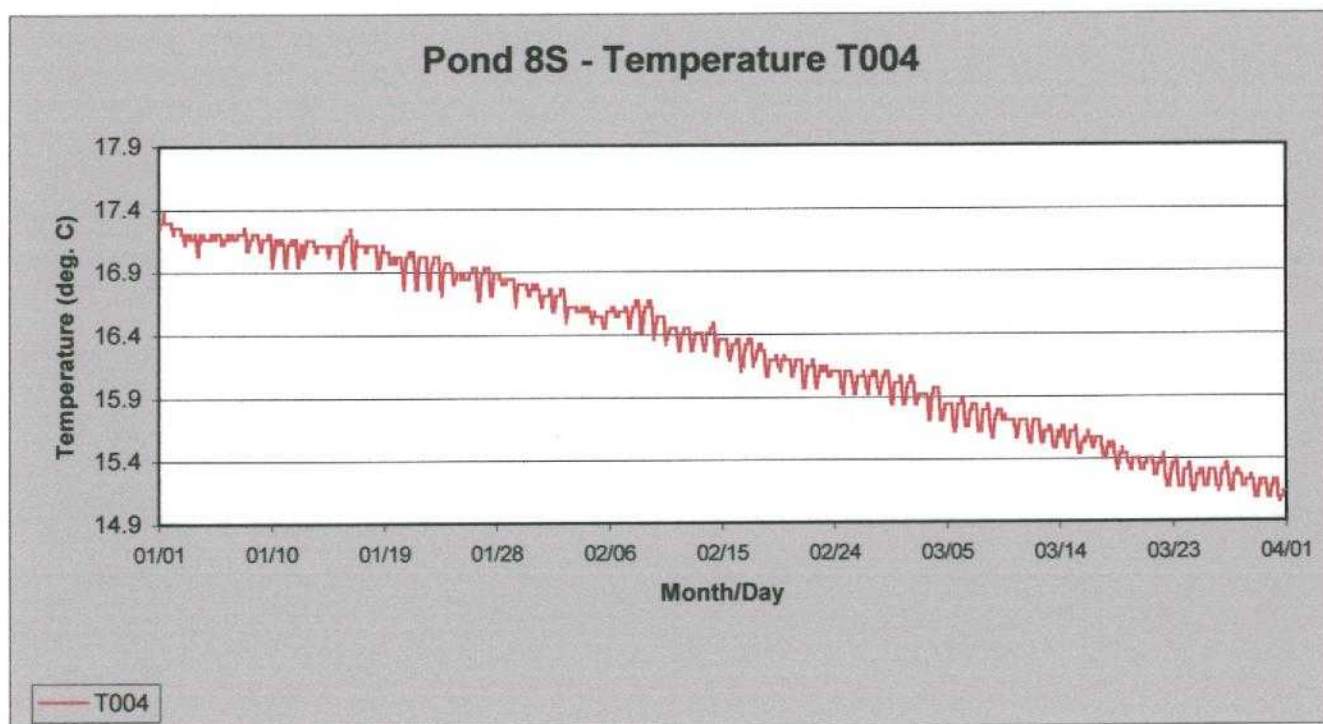


### Summary Statistics

Number of readings: 11528
Maximum: 16.58
Minimum: 14.39
Mean: 15.53
Mode: 16.49
Median: 15.53

**Comments:** Temperature had decreased slowly through a 2.19-degree range during the period from 1/12/2001 to 3/31/2001.

## Temperature Sensor T004:



### Summary Statistics

Number of readings: 12953
Maximum: 17.38
Minimum: 15.05
Mean: 16.29
Mode: 17.16
Median: 16.32

**Comments:** Temperature had decreased slowly through a 2.33-degree range during the period from 1/1/2001 to 3/31/2001.



Pond 8S Post Closure Inspection Record Form

☒ Quarterly Groundcover Inspection

☐ Storm Event Inspection

Date: 3/25/01

Time: 1040 am

Inspector: Valerie A. Berti

Signature: Valerie A. Berti

Inspection Item

Inspection Result

\* Requires detailed explanation

1. **Vegetative Condition (Grass and Ground Cover)**

Is the grass living (root system intact)?

Acceptable ☒ \*Unacceptable ☐

Is there uniform coverage (no bare spots)?

Acceptable ☒ \*Unacceptable ☐

Explain Unacceptable Condition/Comments:

Foliage is from 2' to 4' tall  
with root system intact. Newer grasses  
have begun to sprout covering approx-  
imately 70% of cap. Full coverage of new  
grass expected by end of spring.

2. **Vegetative Soil Conditions**

No excessive soil erosion?

Acceptable ☒ \*Unacceptable ☐

No excessive ruts or potholes present?

Acceptable ☒ \*Unacceptable ☐

No rodent or insect activity

(i.e., fresh soil piles or holes,...)

Acceptable ☒ \*Unacceptable ☐

Explain Unacceptable Condition:

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3. Storm Water Management

Are the swales clear of sediment and debris?

Acceptable ☒ \*Unacceptable ☐

Explain Unacceptable Condition:

*Cleared swales of sediment and debris. There was an excess of debris due to winter snow melt.*

4. Slopes

No sloughing or tension cracking?

Acceptable ☒ \*Unacceptable ☐

No excessive channels or washouts?

Acceptable ☒ \*Unacceptable ☐

Explain Unacceptable Condition:

5. Cap Drainage Monitoring (Annual Check to be performed during 4<sup>th</sup> Quarter)

Is this the 4<sup>th</sup> quarter of the year?

\*Yes ☐ No ☒

If 4<sup>th</sup> quarter measure and record volume in sub drain outlet #1

*Not applicable*

If 4<sup>th</sup> quarter measure and record volume in sub drain outlet #2

*Not applicable*

Total Volume

*Not applicable*

Comments:

*Not applicable*



6. Cap Erosion Monitoring

Perform and record the following topsoil loss measurements

Topsoil Marker	Measurement (inches below nominal installed level)
1	<u>1 1/2 "</u>
2	<u>1/2 "</u>
3	<u>1 1/2 "</u>
4	<u>1/2 "</u>
5	<u>0 "</u>
6	<u>1 1/2 "</u>
7	<u>1 1/2 "</u>

Are more than 4 of the above topsoil measurements at 5 inches or more below the installed thickness?

\*Yes ☐ No ☒

Comments:

Erosion was indicated on all top  
soil markers except #5 since the  
4th QTR of 2000.

7. Security Systems

Fencing continuous and intact?

Acceptable ☒ \*Unacceptable ☐

Gate locks present and functional?

Acceptable ☒ \*Unacceptable ☐

Monitoring camera functional?

Acceptable ☒ \*Unacceptable ☐

Signs posted and visible from all approaches that read "Danger- Unauthorized Personnel Keep Out"  
in English only?

Acceptable ☒ \*Unacceptable ☐

Explain Unacceptable Condition:

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8. Are any repairs or response required?

\*Yes \_\_\_\_\_ No ☒

If a response is required, attach a copy of the work order and/or details of the maintenance and repair completed. Do this for each item as needed. Then complete the following for each item:

- a. Inspection item receiving repair N/A
- b. Date and Time of completion N/A
- c. Are repairs acceptable? Yes — No —
- d. Inspector N/A
- e. Signature N/A

9. Follow up items addressed from previous quarter's site inspection:

No follow items needed to be  
addressed.

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Pond 8S Post Closure Inspection Record Form  
Quarterly Monitoring Equipment Inspection

Date: 3/25/01

Time: 1040 am

Inspector: Valerie A. Berti

Signature: Valerie A. Berti

Inspection Item

Inspection Result

\* Requires detailed explanation

1. Temperature Monitoring Wells ( TT001, TT002, TT003, TT004)

Temperature well covers intact and locked?

Acceptable ☒ \*Unacceptable ☐

Explain Unacceptable Condition:

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2. Groundwater Monitoring Wells (155, 156, 157, 158, and 183):

Are barrier poles intact?

Acceptable ☒ \*Unacceptable ☐

Are well covers intact and locked?

Acceptable ☒ \*Unacceptable ☐

Explain Unacceptable Condition:

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3. Pressure Monitoring Standpipe (P001)

Standpipe intact?

Acceptable ☒ \*Unacceptable ☐

Explain Unacceptable Condition:

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4. Soil Gas Monitoring Wells (GM-1, GM-2, GM-3, GM-4, GM-5, GM-6, GM-7, GM-8, GM-9, GM-10)

Well covers intact and locked?

Acceptable ☒ \*Unacceptable ☐

Have quarterly monitoring samples been taken and logged?

Yes ☒ \*No ☐

Explain Unacceptable Condition/Comments:

Soil gas monitoring samples were taken on 3/23/01 and recorded into the 85 log book as well as an Excel spreadsheet.

5. Temperature & Pressure Alarm Panel

Alarm sound and red light flash when tested?

Acceptable ☒ \*Unacceptable ☐

Panel in acceptable condition?

Acceptable ☒ \*Unacceptable ☐

Quarterly data downloaded and database updated?

Yes ☐ \*No ☒

Explain Unacceptable Condition:

Remainder of 1<sup>st</sup> Qtr 2001 data will be downloaded on April 2, 2001.

6. Temperature and Pressure Data Logger Panel

Data logger panel condition?

Acceptable ☒ \*Unacceptable ☐

Explain Unacceptable Condition:

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7. Settlement Monuments

Settlement monuments clear and accessible?

Acceptable ☒ \*Unacceptable ☐

Explain Unacceptable Condition:

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8. Are any repairs or response required?

\*Yes ☐ No ☒

If a response is required attach a copy of the work order and/or details of the maintenance and repair completed. Do this for each item as needed. Then complete the following for each item.

- a. Inspection item receiving repair N/A
- b. Date and Time of completion N/A
- c. Are repairs acceptable? Yes ☐ No ☐
- d. Inspector N/A
- e. Signature N/A

9. Follow up items addressed from previous quarter's site inspection:

- ① Well #183 was missing the 3. A new sticker was replaced on #183.
- ② New DRMs were installed on 1/2/2001 for T001 and T003.



## **ATTACHMENT B**

### **Summary of Soil Gas Monitoring Results**

# **Pond 8S - Summary of Soil Gas Monitoring Results 2001**

Soil Gas Monitoring Locations	1st Quarter 2001						2nd Quarter 2001					
	H2 (ppm)	H2 (ppm)	PH3 (ppm)	PH3 (ppm)	HCN (ppm)	HCN (ppm)	H2 (ppm)	H2 (ppm)	PH3 (ppm)	PH3 (ppm)	HCN (ppm)	HCN (ppm)
	Peak	Steady State	Peak	Steady State	Peak	Steady State	Peak	Steady State	Peak	Steady State	Peak	Steady State
0007SG01	0.00	0.00	0.00	0.00	N/A	N/A	0.00	0.00	0.00	0.00	N/A	N/A
0007SG02	0.00	0.00	0.00	0.00	N/A	N/A	0.00	0.00	0.00	0.00	N/A	N/A
0007SG03	0.00	0.00	0.00	0.00	N/A	N/A	0.00	0.00	0.02	0.02	4.20	3.80
0007SG04	0.00	0.00	0.00	0.00	N/A	N/A	0.00	0.00	0.03	0.03	7.10	6.40
0007SG05	0.00	0.00	0.00	0.00	N/A	N/A	0.00	0.00	0.00	0.00	N/A	N/A
0007SG06	0.00	0.00	0.00	0.00	N/A	N/A	0.00	0.00	0.00	0.00	N/A	N/A
0007SG07	0.00	0.00	0.04	0.03	4.50	4.20	0.00	0.00	0.05	0.05	6.40	6.20
0007SG08	0.00	0.00	0.00	0.00	N/A	N/A	0.00	0.00	0.00	0.00	N/A	N/A
0007SG09	0.00	0.00	0.25	0.24	28.00	27.90	30.00	30.00	0.43	0.42	27.20	26.90
0007SG10	0.00	0.00	0.00	0.00	N/A	N/A	0.00	0.00	0.00	0.00	N/A	N/A

Soil Gas Monitoring Locations	3rd Quarter 2001						4th Quarter 2001					
	H2 (ppm)	H2 (ppm)	PH3 (ppm)	PH3 (ppm)	HCN (ppm)	HCN (ppm)	H2 (ppm)	H2 (ppm)	PH3 (ppm)	PH3 (ppm)	HCN (ppm)	HCN (ppm)
	Peak	Steady State	Peak	Steady State	Peak	Steady State	Peak	Steady State	Peak	Steady State	Peak	Steady State
0007SG01	0.00	0.00	0.021	0.020	5.90	5.00	0.00	0.00	0.00	0.00	N/A	N/A
0007SG02	0.00	0.00	0.000	0.000	N/A	N/A	0.00	0.00	0.00	0.00	N/A	N/A
0007SG03	0.00	0.00	0.025	0.024	0.60	0.00	0.00	0.00	0.00	0.00	N/A	N/A
0007SG04	0.00	0.00	0.047	0.045	6.50	5.40	0.00	0.00	0.00	0.00	N/A	N/A
0007SG05	0.00	0.00	0.000	0.000	N/A	N/A	0.00	0.00	0.00	0.00	N/A	N/A
0007SG06	0.00	0.00	0.022	0.000	9.50	6.30	0.00	0.00	0.00	0.00	N/A	N/A
0007SG07	0.00	0.00	0.040	0.000	3.60	2.30	0.00	0.00	0.038	0.020	3.60	3.50
0007SG08	0.00	0.00	0.000	0.000	N/A	N/A	0.00	0.00	0.00	0.00	N/A	N/A
0007SG09	20.00	20.00	0.628	0.600	27.50	27.40	0.00	0.00	0.172	0.163	28.40	28.30
0007SG10	0.00	0.00	0.021	0.020	4.10	3.30	0.00	0.00	0.00	0.00	N/A	N/A

N/A = Not Applicable, because no Phosphine was detected; therefore, no HCN readings were taken.